

The following tables summarize information gathered from the California Natural Diversity Database (CNDDB 2002) regarding sensitive plant and wildlife species occurrence within and in the vicinity of the project area.

Table E-1. Sensitive plant species potentially found within Site 2 of the project area on VAN SICKLE ISLAND. Bold items indicate species with CNDDB occurrences on the islands, potential suitable habitat within the project area, or were observed during a preliminary reconnaissance survey conducted on June 11, 2003.

Common name	Scientific name	Status ^a	CNPS list	Quad(s) ^b	Flowering Period	Habitat requirements	Location Comments
Plants with CNDDB occurrences on Van Sickle Island							
Suisun marsh aster	<i>Aster lentus</i>	FSC	1B	Antioch North, Honker Bay, Jersey Island, Denverton, Woodward Island, Bouldin Island, Isleton, Rio Vista, Vine Hill, Fairfield South	May–Nov	Brackish and freshwater marshes and swamps; endemic to the Delta; most often seen along sloughs with Phragmites, Scirpus, blackberry, Typha, etc.; 0–3m elevation.	Occurrences on east and south side of Van Sickle Island. Suitable habitat occurs on waterside of levee only, and will thus not be impacted by the project. Species not observed during reconnaissance survey.
Delta tule pea ^c	<i>Lathyrus jepsonii</i> <i>var jepsonii</i>	FSC	1B	Antioch North, Honker Bay, Jersey Island, Denverton, Woodward Island, Bouldin Island, Isleton, Rio Vista, Vine Hill, Fairfield South	May–(Sept)	Brackish and freshwater marshes and swamps; most distribution restricted to the Delta; often found with <i>Typha</i> , <i>Aster lentus</i> , <i>Rosa californica</i> , <i>Juncus</i> and <i>Scirpus</i> spp., usually on edges of marshes and sloughs	Occurrences on east edge and southwest end near Point Wall of Van Sickle Island. Suitable habitat occurs on waterside of levee only, and will thus not be impacted by the project. Several patches of the species were observed on waterside during reconnaissance survey.
Mason's lilaeopsis ^c	<i>Lilaeopsis masonii</i>	FSC, rare in CA	1B	Antioch North, Jersey Island, Honker Bay, Bouldin Island, Vine Hill, Woodward Island, Bouldin Island, Isleton, Rio Vista, Denverton, Fairfield South	April–Nov	Freshwater and brackish marshes, riparian scrub; tidal zones, in muddy or silty soil formed through river deposition or river bank erosion; 0–10m elevation.	Occurrence on Montezuma Slough, from north end of Van Sickle Island north to Meins Landing, Suisan Marsh; also observed on east end of Van Sickle Island. Suitable habitat occurs on waterside of levee only, and will thus not be impacted by

Common name	Scientific name	Status ^a	CNPS list	Quad(s) ^b	Flowering Period	Habitat requirements	Location Comments
							the project. Species not observed during reconnaissance survey.
Delta mudwort ^c	<i>Limosella subulata</i>	---	2	Antioch North, Jersey Island, Honker Bay, Bouldin Island, Woodward Island, Bouldin Island, Isleton, Rio Vista, Vine Hill	May–Aug	Riparian scrub, brackish and freshwater marsh; usually on mud banks of the Delta in marshy or scrubby riparian associations; often with <i>Lilaepsis masonii</i> ; 0-3m elevation	Occurrence along Montezuma slough adjacent to Van Sickle Island. Suitable habitat occurs on waterside of levee only, and will thus not be impacted by the project. Species not observed during reconnaissance survey.
Plants with potential habitat at project site (including surrounding quads)							
Heartscale ^c	<i>Atriplex cordulata</i>	FSC	1B	Birds Landing	April–Oct	Chenopod scrub, meadows and seeps, Valley and foothill grassland (sandy) / saline or alkaline; Alkaline flats and scalds in the Central Valley, sandy soils; 1-150m elevation	2 occurrences, both in alkaline meadow in intermittent drainage along roadside. Potential suitable habitat occurs within the project area, but the species was not observed during reconnaissance survey.
Brittlescale	<i>Atriplex depressa</i>	FSC	1B	Denver-ton	May–Oct	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools (alkaline, clay); Usually in alkali scalds or alkali clay in meadows or annual grasslands; rarely associated with riparian, marshes, or vernal pools.	Most locations are along central valley. Project is likely outside its natural range of distribution. Potential suitable habitat occurs within the project area, but the species was not observed during reconnaissance survey.

Common name	Scientific name	Status ^a	CNPS list	Quad(s) ^b	Flowering Period	Habitat requirements	Location Comments
San Joaquin saltbush ^c	<i>Atriplex joaquiniana</i>	FSC	1B	Antioch North, Woodward Island, Rio Vista, Brentwood, Antioch South, Denverton, Fairfield South	April–Oct	Chenopod scrub, meadows and seeps, playas, Valley and foothill grassland / alkaline; in seasonal alkali wetlands or alkali sink scrub with <i>Distichlis spicata</i> , <i>Frankenia</i> , etc.; 1-250m elevation	Occurrence at Montezuma, 1.5 miles NW of Collinsville. Potential suitable habitat occurs within the project area, but the species was not observed during reconnaissance survey.
Bristly sedge	<i>Carex comosa</i>	---	2	Bouldin Island	May–Sept	Coastal prairie, marshes and swamps (lake margins), Valley and foothill grassland; Lake margins, wet places;	Suitable habitat occurs on waterside of levee only, and will thus not be impacted by the project. Species not observed during reconnaissance survey.
Suisan thistle	<i>Cirsium hydrophilum</i> var. <i>hydrophilum</i>	FE	1B	Denverton, Fairfield South	Jul–Sept	Salt marsh; endemic to the Delta; grows with <i>Scirpus</i> & <i>Distichlis</i> spp., near small watercourses and ditches within salt marsh;	Occurrence on Grizzly Isl. Wildlife Area, 1.5 miles west of Beldon's Landing. Potential suitable habitat occurs within project area, but species was not observed during reconnaissance survey.
Soft bird's-beak ^c	<i>Cordylanthus mollis</i> ssp. <i>mollis</i>	FE, rare in CA	1B	Honker Bay, Jersey Island, Antioch North, Denverton, Fairfield South	Jul–Nov	Coastal salt marsh, typically with <i>Distichlis</i> , <i>Salicornia</i> , <i>Frankenia</i> spp.	3 occurrences- 2 north of Mcavoy boat harbor, NE of Shores Acres, 0.5 miles N of RR tracks, W of Pittsburg; 1 @ Middle Point – Concord Naval Weapons Station. Potential suitable habitat occurs within project area, but no <i>Cordylanthus</i> species of any type was observed during reconnaissance survey.

Common name	Scientific name	Status ^a	CNPS list	Quad(s) ^b	Flowering Period	Habitat requirements	Location Comments
Hispid bird's-beak	<i>Cordylanthus mollis ssp. hispidus</i>	FSC	1B	Denverton	Jun–Sept	Meadows and seeps, playas, Valley and foothill grassland (alkaline); In damp alkaline soils, especially in alkaline meadows and alkali sinks with <i>Distichlis</i>	Most other occurrences in Central Valley. Delta islands likely outside natural distribution. Potential suitable habitat occurs within project area, but no <i>Cordylanthus</i> species of any type was observed during reconnaissance survey.
Dwarf downingia	<i>Downingia pusilla</i>	---	2	Antioch North, Denverton	Mar–May	Valley and foothill grassland (mesic); vernal pools; vernal lake and pool margins.	Occurrence 1.2 miles NNE of Montezuma, 0.25 miles W of Collinsville Road, in vernal pools; 2 nd occurrence near same place. Suitable habitat does not occur within the project area.
Rose-mallow	<i>Hibiscus lasiocarpus</i>	---	2	Jersey Island, Woodward Island, Bouldin Island, Rio Vista	June–Sept	Marshes and swamps; moist, freshwater-soaked river banks and low peat islands in sloughs; known from the Delta watershed	Suitable habitat occurs on waterside of levee only, and will thus not be impacted by the project. No <i>Hibiscus</i> species of any type were observed during reconnaissance survey.
Carquinez goldenbush	<i>Isocoma arguta</i>	FSC	1B	Jersey Island, Antioch North, Honker Bay, Birds Landing, Rio Vista, Denverton, Rio Vista, Birds Landing, Fairfield South	Aug–Dec	Valley and foothill grasslands (alkaline); known only from Contra Costa and Solano counties; alkaline soils, flats, lower hills; on low benches near drainages and on tops and sides of mounds in swale habitat; 1-20m elevation	Occurrence in Montezuma Hills, west of Rio Vista.. Suitable habitat does not occur within the project area.

Common name	Scientific name	Status ^a	CNPS list	Quad(s) ^b	Flowering Period	Habitat requirements	Location Comments
Northern California black walnut	<i>Juglans hindsii</i>	FSC	1B	Isleton, Rio Vista	April–May	Riparian forest and woodland; deep alluvial soil associated with a creek or stream	CNDDB occurrences in the area thought to be extirpated. Natural habitat is typically not within Delta islands, but the species has been widely planted, hybridizes readily with English walnut, and has been naturalized from cultivation. Suitable habitat occurs on waterside of levee only, and will thus not be impacted by the project.
Contra costa goldfields	<i>Lasthenia Conjugens</i>	FE	1B	Antioch North, Antioch South, Denverton, Walnut Creek, Fairfield South	Mar–June	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools / mesic; vernal pools, swales, low depressions, in open grassy areas; 1–445m elevation	Occurrence near Antioch. Suitable habitat does not occur within the project area.
Legenere	<i>Legenere limosa</i>	FSC	1B	Denverton, Fairfield South	Apr–Jun	In beds of vernal pools	Suitable habitat does not occur within the project area.
Eel-grass pondweed ^c	<i>Potamogeton zosteriformis</i>	---	2	Jersey Island, Bouldin Island	June–July	Marshes, swamps, ponds, lakes, and streams; 0–1860m elevation	Suitable habitat occurs on waterside of levee only, and will thus not be impacted by the project. No <i>Potamogeton</i> species of any type were observed during reconnaissance survey.

Common name	Scientific name	Status ^a	CNPS list	Quad(s) ^b	Flowering Period	Habitat requirements	Location Comments
Sanford's arrowhead ^c	<i>Sagittaria sanfordii</i>	FSC	1B	Isleton	May–Oct	In standing or slow moving freshwater ponds, marshes, and ditches; shallow freshwater marshes and swamps;	Most occurrences in Central Valley. One occurrence on island in North Mokelumne River, 6km east of Isleton. Suitable habitat on waterside of levee only, and will thus not be impacted by the project. The species was not observed during reconnaissance survey.
Marsh skullcap ^c	<i>Scutellaria galericulata</i>	---	2	Woodward Island, Bouldin Island	June–Sept	Marshes and swamps, meadows and seeps, lower montane coniferous forest; 0-2100m elevation.	Occurrences from the Delta in SJQ Co. need further study. Locations are mostly in Sierras. Suitable habitat on waterside of levee only, and will thus not be impacted by the project. No <i>Scutellaria</i> of any type was observed during reconnaissance survey.
Blue skullcap ^c	<i>Scutellaria lateriflora</i>	---	2	Jersey Island, Bouldin Island, Terminous, Thornton, Isleton, Bouldin Island, Isleton	Mar–July	Wet meadows and marshes; -3–50m elevation.	Suitable habitat on waterside of levee only, and will thus not be impacted by the project. No <i>Scutellaria</i> of any type was observed during reconnaissance survey.
Occurs in vicinity of Van Sickle Island (target quad plus 8 surrounding), but suitable habitat does not occur.							
Large-flowered fiddleneck	<i>Amsinckia grandiflora</i>	FE, SE	1B	Antioch South, Clayton	Apr–May	Cismontane woodland; Valley and foothill grassland	Known from only 3 natural occurrences. Suitable habitat does not occur within project area.
Bent-flowered fiddleneck	<i>Amsinckia lunaris</i>	FSC	1B	Walnut Creek	Mar–Jun	Coastal bluff scrub; cismontane woodland; Valley and foothill grassland	Suitable habitat does not occur within project area.
Mt. Diablo manzanita	<i>Arctostaphylos Auriculata</i>	---	1B	Antioch North, Antioch South, Clayton	Jan–Mar	Chaparral (sandstone)	Suitable habitat does not occur within project area.

Common name	Scientific name	Status ^a	CNPS list	Quad(s) ^b	Flowering Period	Habitat requirements	Location Comments
Alkali milk-vetch	<i>Astragalus tener</i> <i>var tener</i>	FSC	1B	Antioch North, Denver, Fairfield South	Mar–June	Playas, Valley and foothill grassland (adobe clay), vernal pools/ alkaline; low ground, alkali flats, and flooded lands; in annual grassland, playas, or vernal pools; 1-170m elevation.	Suitable habitat does not occur within the project area.
Big tarplant	<i>Blepharizonia</i> <i>plumose ssp</i> <i>plumose</i>	FSC	1B	Antioch North, Antioch South, <u>Honker Bay</u> , Brentwood, Antioch South, Walnut Creek	July–Oct	Valley and foothill grasslands; dry hills and plains in annual grassland. Clay to clay-loam soils, usually on slopes and often in burned areas.	Honker Bay: occurrence near Pittsburg Suitable habitat does not occur within the project area.
Mt. Diablo fairy-lantern	<i>Calochortus</i> <i>pulchellus</i>	---	1B	Antioch South, Clayton, Walnut Creek	Apr–Jun	Chaparral, cismontane woodland, riparian woodland, Valley and foothill grassland; On wooded and brush slopes	There is uncertainty whether plant occurs in Solano County Primarily from the Mt. Diablo area. Suitable habitat does not occur within project area.
Butte county morning-glory	<i>Calystegia</i> <i>atriplicifolia ssp.</i> <i>buttensis</i>	FSC	1B	Clayton	May–Jul	Chaparral; lower montane coniferous forest/ rocky	Uncertain siting on Clayton quad. Suitable habitat does not occur within project area.
Congdon's tarplant	<i>Centromadia parryi</i> <i>ssp. congdonii</i>	FSC	1B	Walnut Creek	Jun– (Nov)	Valley and foothill grassland (alkaline)	Suitable habitat does not occur within project area.
Mt. Diablo bird's-beak	<i>Cordylanthus</i> <i>nidularius</i>	FSC	1B	Clayton	Jul–Aug	Chaparral (serpentinite)	Known from only 1 occurrence on Mt. Diablo. Suitable habitat does not occur within project area.
Hospital Canyon larkspur	<i>Delphinium</i> <i>californicum ssp.</i> <i>interius</i>	FSC	1B	Clayton	Apr–Jun	Chaparral (openings); cismontane woodland (mesic)	Most occurrences further south. Suitable habitat does not occur within project area.
Diablo buckwheat	<i>Eriogonum</i> <i>truncatum</i>	---	1A	Antioch South, Clayton	Apr– (Nov)	Chaparral; coastal scrub; Valley and foothill grassland/ sandy	Presumed extinct in California. Suitable habitat does not occur within project area.
Round-leaved filaree	<i>Erodium</i> <i>macrophyllum</i>	---	2	Antioch North, Antioch South, Brentwood, Antioch South, Clayton	Mar–May	Cismontane woodland; Valley and foothill grassland / clay; clay soils; 15-1200m elevation	Suitable habitat does not occur within the project area.

Common name	Scientific name	Status ^a	CNPS list	Quad(s) ^b	Flowering Period	Habitat requirements	Location Comments
Contra costa wallflower	<i>Erysimum capitatum ssp angustatum</i>	FE, FE	1B	Antioch North	Mar–July	Inland dunes; endemic to Contra Costa county; stabilized dunes of sand and clay near Antioch along the San Joaquin River; 3-20m elevation.	Suitable habitat does not occur within the project area.
Diamond-petaled California poppy	<i>Eschscholzia Rhombipetala</i>	FSC	1B	Antioch North, Antioch South, Woodward Island, Brentwood	Mar–April	Valley and foothill grassland (alkaline, clay); most sites are historical; alkaline, clay slopes and flats; 0-97m elevation	Suitable habitat does not occur within the project area.
Fragrant fritillary	<i>Fritillaria liliacea</i>	FSC	1B	Antioch North, Clayton	Feb–April	Cismontane woodland, coastal prairie, coastal scrub, Valley and foothill grassland/ often serpentinite; various soils reported though usually in clay, in grassland; 3-410m elevation	Suitable habitat does not occur within the project area.
Diablo helianthella	<i>Helianthella castanea</i>	FSC	1B	Antioch South, Clayton, Walnut Creek	April–June	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, Valley and foothill grassland; Usually in chaparral/oak woodland interface in rocky, azonal soils, often in partial shade.	Suitable habitat does not occur within project area.
Brewer's western flax	<i>Hesperolinon breweri</i>	FSC	1B	Antioch North, Antioch South, Clayton	May–July	Chaparral; cismontane woodland; Valley and foothill grassland / usually serpentinite; often in rocky serpentinite soil in serpentine chaparral and grassland; 30-885m elevation	Suitable habitat does not occur within the project area.

Common name	Scientific name	Status ^a	CNPS list	Quad(s) ^b	Flowering Period	Habitat requirements	Location Comments
Showy madia	<i>Madia radiata</i>	FSC	1B	Antioch North, Antioch South	Mar–May	Cismontane woodland, Valley and foothill grassland; mostly on adobe clay in grassland or among shrubs; 25-1125m elevation.	Suitable habitat does not occur within the project area.
Hall's bush mallow	<i>Malacothamus hallii</i>	FSC	1B	Clayton	May–Sept	Chaparral; coastal scrub	Most occurrences further south. Suitable habitat does not occur within project area.
Robust monardella	<i>Monardella villosa ssp. globosa</i>	FSC	1B	Vine Hill	Jun–Jul	Broadleaved upland forest (openings); chaparral (openings); cismontane woodland; coastal scrub; Valley and foothill grassland	Suitable habitat does not occur within project area.
Antioch dunes evening-primrose	<i>Oenothera deltoids ssp. howellii</i>	FE, SE	1B	Antioch North, Jersey Island, <u>Honker Bay</u>	Mar–Sept	Inland dunes; occurs in remnant river bluffs and sand dunes east of Antioch;	Occurrence on Honker quad; west end of Brown's Island, growing in sand dunes. Suitable habitat does not occur within the project area.
Mt. Diablo phacelia	<i>Phacelia phacelioides</i>	FSC	1B	Clayton	April–May	Chaparral; cismontane woodland/ rocky	Suitable habitat does not occur within project area.
Bearded popcorn-flower	<i>Plagiobothrys hystriculus</i>	FSC	1A	Jersey Island, Antioch North, <u>Honker Bay</u> , Birds Landing, Rio Vista, Denverton, Rio Vista, Birds Landing	April–May	Valley and foothill grassland (mesic); vernal pools; wet sites; 10-50m elevation Known only from historical collection in Solano County.	Honker & AN Quad: Occurrence Road 425, Montezuma Hills, southwest of Rio Vista. (same occurrence as on Jersey quad). Presumed extinct in California
Rock sanicle	<i>Sanicula saxatilis</i>	FSC	1B	Clayton	Apr–May	Broadleaved upland forest, chaparral; Valley and foothill grassland/ rocky	Suitable habitat does not occur within project area.
Rayless ragwort	<i>Senecio aphanactis</i>	---	2	Antioch South, Clayton	Jan–April	Chaparral; cismontane woodland; coastal scrub/ alkaline	Suitable habitat does not occur within project area.
Most beautiful jewel-flower	<i>Streptanthus albidus ssp. peramoenus</i>	FSC	1B	Clayton	Apr–Jun	Chaparral; cismontane woodland; Valley and foothill grassland/ serpentinite	Suitable habitat does not occur within project area.
Mt. Diablo jewel-flower	<i>Streptanthus hispidus</i>	FSC	1B	Clayton	Mar–Jun	Chaparral; Valley and foothill grassland/ rocky	Suitable habitat does not occur within project area.

Common name	Scientific name	Status ^a	CNPS list	Quad(s) ^b	Flowering Period	Habitat requirements	Location Comments
Coastal triquetrella	<i>Triquetrella californica</i>	---	1B	Clayton	--	Coastal bluff scrub; coastal scrub/ soil	Suitable habitat does not occur within project area.
Caper-fruited tropidocarpum ^c	<i>Tropidocarpum capparidem</i>	FSC	1A	Woodward Island, Brentwood, Clayton	Mar–April	Valley and foothill grassland (alkaline hills)	Presumed extinct in California. Suitable habitat does not occur within project area.
Oval-leaved viburnum	<i>Viburnum ellipticum</i>	---	2	Clayton	May–Jun	Chaparral; cismontane woodland; lower montane coniferous forest	Suitable habitat does not occur within project area.

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- FE Listed as endangered under the federal Endangered Species Act.
 - FT Listed as threatened under the federal Endangered Species Act.
 - FC Federal candidate species.
 - FSC Federal species of concern
 - SE Listed as endangered under the California Endangered Species Act.
 - ST Listed as threatened under the California Endangered Species Act.
 - SC State candidate species
 - CSC CDFG species of special concern.

CNPS listing status:

- 1A Plants presumed extinct in California
- 1B Plants rare, threatened, or endangered in California and elsewhere
- 2 Plants rare, threatened, or endangered in California, but more common elsewhere

- b Quad(s) refers to USGS 7.5' quadrangles (project area quad [Honker Bay, Antioch North] plus 8 adjacent quads) searched for occurrences of this species.
- c Indicates specimens viewed at Jepson Herbarium (UC Berkeley) on 5/21/03, prior to preliminary reconnaissance survey.

Table E-2. Sensitive wildlife species potentially found within the project area on VAN SICKLE ISLAND. [Bold items show species that may or do occur and may be impacted by project activities. These species were targeted during a reconnaissance survey]

Common name	Scientific name	Status ^a	Quad(s) ^b	Habitat requirements	Comments
Fish					
Sacramento splittail	<i>Pogonichthys macrolepidotus</i>	FT	Denverton, Vine Hill, Fairfield South	Occurs in the Delta, Suisun Bay and associated marshes.	Suitable habitat occurs on waterside of levee only, and will thus not be impacted by the project.
Sacramento perch	<i>Archoplites interruptus</i>	FSC	Antioch North	Historically found in sloughs, slow-moving rivers, and lakes.	Suitable habitat occurs on waterside of levee only, and will thus not be impacted by the project.
Amphibians					
California Tiger Salamander	<i>Ambystoma californiense</i>	FE (population in Sonoma and Santa Barbara)	Honker Bay, Antioch North, Antioch South, Birds Landing, Brentwood, Antioch South, Clayton, Denverton, Walnut Creek	Occurs in hilly non-native grassland in burrows, vernal pools, other seasonal water sources.	Suitable habitat does not occur within project area.
California red-legged frog	<i>Rena aurora draytonii</i>	FT	Honker Bay, Antioch South, Clayton, Walnut Creek, Fairfield South	Occurs in or near permanent sources of deep water with dense shrubs and riparian vegetation.	Suitable habitat does not occur within project area.
Reptiles					
Western pond turtle	<i>Clemmys marmorata</i>	---	Jersey Island, Antioch North, Woodward Island, Bouldin Island, Isleton, Brentwood, Antioch South, Fairfield South	Occurs in ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation.	Suitable habitat may exist on waterside of levee only, and will thus not be impacted by the project.
Northwestern pond turtle	<i>Clemmys marmorata marmorata</i>	FSC	Bouldin Island, Isleton	Typically found in association with permanent water in a variety of habitats.	Suitable habitat may exist on waterside of levee only, and will thus not be impacted by the project.
Silvery legless lizard	<i>Anniella pulchra pulchra</i>	FSC	Jersey Island	Typically found in sandy or loose loamy soils under sparse vegetation.	Suitable habitat does not occur within project area.
California horned lizard	<i>Phrynosoma coronatum frontale</i>	FSC	Clayton	Occurs most commonly in lowlands along sandy washes with scattered low bushes.	Suitable habitat does not occur within project area.
Alameda whipsnake	<i>Masticophis lateralis</i>	FT, ST	Antioch South, Clayton, Walnut Creek	Occurs in valley-foothill hardwood habitat.	Suitable habitat does not occur within project area.

Common name	Scientific name	Status ^a	Quad(s) ^b	Habitat requirements	Comments
	<i>euryxanthus</i>				
Giant garter snake	<i>Thamnophis gigas</i>	FT, ST	Jersey Island, Antioch North, Bouldin Island	Occurs in freshwater marsh and low gradient streams, as well as drainage canals and irrigation ditches.	Suitable habitat may occur on Van Sickle Island, but is unlikely within project area.
Birds					
Double-crested cormorant	<i>Phalacrocorax auritus</i>	---	Antioch North	Colonial nester coastal cliffs, offshore islands, lake margins.	Reported on Sherman Island. Suitable nesting habitat does not occur within project area.
White-tailed kite	<i>Elanus leucurus</i>	FSC	Antioch North	Nests in rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland habitats. Forages in open grasslands, meadows, or marshes that are close to isolated, dense-topped trees for nesting and perching.	Suitable nesting habitat does not occur within project area, but project may have temporary impacts to foraging habitat. Species was observed foraging on northern end of Van Sickle Island during reconnaissance survey.
California black rail	<i>Laterallus jamaicensis coturniculus</i>	FSC, ST	Honker Bay, Vine Hill, Jersey Island, Woodward Island, Denverton, Fairfield South	Occurs in tidal salt marsh heavily grown to pickleweed. Mainly inhabits salt-marshes bordering larger bays.	Potential suitable habitat occurs within the project area. Pre-construction surveys will be conducted, and construction is scheduled to occur outside the breeding season.
California clapper rail	<i>Rallus longirostris obsoletus</i>	FE, SE	Honker Bay, Vine Hill, Fairfield South	Occurs in saltwater and brackish marshes traversed by tidal sloughs. Associated with abundant growths of pickleweed.	Potential suitable habitat occurs within the project area. Pre-construction surveys will be conducted, and construction is scheduled to occur outside the breeding season.
California least tern	<i>Sterna antillarum browni</i>	FE, SE	Honker Bay	Colonial breeder on bare or sparsely vegetated, flat substrates.	No known breeding areas exist within the project area.
Mountain plover	<i>Charadrius montanus</i>	FT(Proposed)	Birds Landing	Occurs in grasslands, freshly plowed fields, and newly sprouting grain fields.	Suitable habitat does not occur within project area.
Great blue heron	<i>Ardea herodias</i>	---	Woodward Island, Bouldin Island	Colonial nester in tall trees, cliffsides. Rookery sites are usually in close proximity to foraging areas, such as marshes, tide-flats, and wet meadows.	Suitable nesting habitat does not occur within project area, but project may have minor impacts to foraging habitat.
Swainson's	<i>Buteo swainsoni</i>	FSC, ST	Bouldin Island, Isleton,	Breeds in stands with few trees in	Suitable nesting habitat does not occur

Common name	Scientific name	Status ^a	Quad(s) ^b	Habitat requirements	Comments
hawk			Rio Vista, Brentwood	juniper-sage flats, riparian areas and in oak savannah. Typically forages in grasslands, or agricultural areas supporting rodent populations.	within project area, but project may have temporary impacts to foraging habitat.
Burrowing owl	<i>Athene cunicularia</i>	FSC	Antioch North, Birds Landing, Honker Bay, Jersey Island, Rio Vista, Birds Landing, Brentwood, Antioch South, Clayton, Denverton, Walnut Creek, Fairfield South	Burrow sites are typically located in open, dry, annual or perennial grasslands, deserts, and shrublands characterized by low-growing vegetation.	Suitable habitat not present in project area.
Short-eared owl	<i>Asio flammeus</i>	---	Honker Bay, Denverton, Fairfield South, Fairfield South	Found in swamplands, lowland meadows, and irrigated alfalfa fields. Typically nest in tule patches or tall grass.	Suitable habitat not present in project area.
Bank swallow	<i>Riparia riparia</i>	FSC, ST	Jersey Island	Colonial nester in vertical banks/cliffs with fine-textured sand soils near rivers.	Suitable habitat not present in project area.
Saltmarsh common yellowthroat	<i>Geothlypis trichas sinuosa</i>	FSC	Honker Bay, Vine Hill	Requires thick, continuous cover down to water surface for foraging. For nesting, requires tall grasses, tule patches, willows for nesting.	Potential suitable nesting habitat occurs within the project area, but construction will occur outside the breeding season. Impacts to wetlands and salt marsh harvest mouse habitat will be mitigated on site.
Suisan song sparrow	<i>Melospiza melodia maxillaries</i>	FSC	Antioch North, Honker Bay, Vine Hill, Denverton, Fairfield South	Occurs in association with cattails, tules, and other sedges.	Potential suitable habitat occurs within the project area and song sparrows were observed during reconnaissance survey (not identified to subspecies). Construction will occur outside the breeding season, and impacts to wetlands and salt marsh harvest mouse habitat will be mitigated on site.
Tricolored blackbird	<i>Agelaius tricolor</i>	FSC	Honker Bay, Denverton, Birds Landing, Brentwood, Vine Hill	Highly colonial species requiring open water and protected nesting substrate, as well as adjacent vegetation for nesting.	Suitable habitat does not occur within project area.

Common name	Scientific name	Status ^a	Quad(s) ^b	Habitat requirements	Comments
Mammals					
San Joaquin pocket mouse	<i>Perognathus inornatus inornatus</i>	FSC	Honker Bay, Antioch South, Clayton	Occurs in grasslands and blue oak savannas.	Suitable habitat does not occur within project area.
Salt-marsh harvest mouse	<i>Reithrodontomys raviventris</i>	FE, SE	Honker Bay, Denverton, Vine Hill, Antioch North, Fairfield South	Occurs only in saline emergent wetlands of San Francisco Bay and its tributaries, where pickleweed is predominant.	CNDDDB occurrence on west side of Van Sickle Island. Potential suitable habitat occurs within the project area. Impacts will be minimized and habitat will be mitigated on-site mitigation.
Berkeley kangaroo rat	<i>Dipodomys heermanni berkeleyensis</i>	FSC	Clayton	Occurs in open grassy hilltops and open spaces in chaparral and blue oak/digger pine woodlands.	Suitable habitat does not occur within project area.
Suisan shrew	<i>Sorex ornatus sinuosus</i>	FSC	Denverton, Fairfield South	Occurs in tidal marshes of the northern shores of Suisun and San Pablo bays.	Potential suitable habitat occurs within the project area. Impacts to wetlands and salt marsh harvest mouse habitat will be mitigated on site.
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE, ST	Woodward Island, Brentwood, Antioch South, Clayton	Occurs in annual grasslands or grassy open areas with scattered shrubby vegetation.	Suitable habitat does not occur within project area.
Insects					
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FT	Antioch North, Woodward Island, Birds Landing, Brentwood, Antioch South, Denverton	Occurs in small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	Suitable habitat does not occur within project area.
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	FE	Antioch North, Honker Bay, Denverton	Inhabits vernal pools and swales, commonly in grass-bottomed swales of unplowed grasslands.	Suitable habitat does not occur within project area.
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	FE	Denverton	Occurs in large, turbid pools located in swales formed by old, braided alluvium.	Suitable habitat does not occur within project area.
Midvalley fairy shrimp	<i>Branchinecta mesovallensis</i>	FSC	Birds Landing, Brentwood	Occurs in small, grassy vernal pools.	Suitable habitat does not occur within project area.
California linderiella	<i>Linderiella occidentalis</i>	FSC	Antioch North, Denverton, Vine Hill, Fairfield South	Inhabits seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions.	Suitable habitat does not occur within project area.
Curved-foot	<i>Hygrotus curvipes</i>	FSC	Jersey Island, Brentwood	Inhabits vernal pool and wetland	Suitable habitat does not occur within

Common name	Scientific name	Status ^a	Quad(s) ^b	Habitat requirements	Comments
hygrotus diving beetle				habitats within the Delta.	project area.
San Joaquin dune beetle	<i>Coelus gracilis</i>	FSC	Antioch North	Occurs in fossil dunes along the western edge of San Joaquin Valley.	Suitable habitat does not occur within project area.
Sacramento anthicid beetle	<i>Anthicus sacramento</i>	---	Rio Vista	Occurs in sand dunes of the Delta.	Suitable habitat does not occur within project area.
Molestan blister beetle	<i>Lytta molesta</i>	FSC	Brentwood, Antioch South	Usually found in association with vernal pool vegetation.	Suitable habitat does not occur within project area.
Antioch efferian robberfly	<i>Efferia antiochi</i>	FSC	Antioch North	Known only to occur at Antioch Dunes, Contra Costa County and Fresno, Fresno County.	Suitable habitat does not occur within project area.
Antioch andrenid bee	<i>Perdita scituta antiochensis</i>	FSC	Antioch North	Known only to occur at Antioch Dunes, Contra Costa County and Fresno, Fresno County.	Suitable habitat does not occur within project area.
Antioch mutilid wasp	<i>Myrmosula pacifica</i>	FSC	Antioch North	Known only to occur at Antioch Dunes, Contra Costa County and Fresno, Fresno County.	Suitable habitat does not occur within project area.
Lange's metalmark butterfly	<i>Apodemia mormo langei</i>	FE	Antioch North	Known only to occur at Antioch Dunes, Contra Costa County and Fresno, Fresno County.	Suitable habitat does not occur within project area.
Monarch butterfly	<i>Danaus plexippus</i>	---	Fairfield South	Roosts in wind-protected tree groves with nectar and water sources nearby.	Suitable habitat does not occur within project area.
Middlekauf's shieldback katydid	<i>Idiostatus middlekaufi</i>	FSC	Antioch North	Known only to occur at Antioch Dunes, Contra Costa County and Fresno, Fresno County.	Suitable habitat does not occur within project area.
Bridges' coast range shoulderband (snail)	<i>Helminthoglypta nickliniana bridgesi</i>	FSC	Antioch South, Clayton	Inhabits open hillsides and tends to colonize under tall grasses and weeds.	Suitable habitat does not occur within project area.

- a
- FE Listed as endangered under the federal Endangered Species Act.
 - FT Listed as threatened under the federal Endangered Species Act.
 - FC Federal candidate species.
 - FSC Federal species of concern
 - SE Listed as endangered under the California Endangered Species Act.
 - ST Listed as threatened under the California Endangered Species Act.
 - SC State candidate species
 - CSC CDFG species of special concern.

CNPS listing status:

- 1A Plants presumed extinct in California
- 1B Plants rare, threatened, or endangered in California and elsewhere
- 2 Plants rare, threatened, or endangered in California, but more common elsewhere
- b Quad(s) refers to USGS 7.5' quadrangles (project area quad [Honker Bay, Antioch North] plus 8 adjacent quads) searched for occurrences of this species.